



# Zebra Mussels

## Background, Life History

Zebra mussels and a related species, quagga mussels, are highly invasive mollusks native to the Caspian Sea region of Europe and Asia. They came to North American waters in international shipping ballast water and were discovered in Lake St. Clair near Detroit in 1988. Since then, zebra mussels have spread rapidly throughout the Great Lakes and connected waterways of the Mississippi and Hudson rivers. Zebra mussels were first reported in Missouri in 1991 in the Mississippi River near St. Louis.

Female zebra mussels can produce as many as 1 million eggs a year. These develop into microscopic, free-swimming larvae (veligers) that quickly begin to form shells. At about three weeks, the sand-grain-sized larvae start to settle and can attach to any firm surface. Juvenile mussels feel like sandpaper on boat hulls. They clump together and cover rock, metal, rubber, wood, docks, boat hulls, native mussels, crayfish, and even aquatic plants.

Zebra mussels filter plankton from water. Each mussel can filter about one quart of water a day. However, not all of what they remove is eaten. What they don't eat is combined with mucus and discharged onto the lake bottom where it accumulates. This material, which may benefit bottom feeders, also may reduce the plankton available to other aquatic species that depend on it. Diving ducks, freshwater drum, and other fish eat zebra mussels, but will not control them.



## Pathways for Spread

While commercial barges no doubt carry attached adult zebra mussels to uninfested reaches of large rivers, one of the greatest risks for spreading them to lakes and rivers is overland transport on boats, motors, trailers, docks, aquatic plants, pumps, and other equipment. Larger adult zebra mussels can live several days out of water in moist, shaded areas. Boats used, moored, or stored in infested waters may carry hitchhiking mussels attached to their hulls, engine drive units, and anchor chains.

Microscopic zebra mussel veligers can survive in boat bilge water, livewells, bait buckets, and engine cooling water systems. However, they die quickly when their hiding places are warmed in the sun or when they "blow dry" on the highway on the trip home.

## Impacts

The economic impacts of zebra mussels in North America during the next decade are expected to be in the billions of dollars. Zebra mussels can:

- Clog power plants, as well as industrial and public drinking water intakes
- Foul boat hulls and motors
- Impact native fish and disrupt aquatic ecosystems
- Decimate populations of native freshwater mussels and other aquatic animals

## Control

If you are a boater, angler, water skier, scuba diver, sailor, canoeist, or other type of water recreationist, you can prevent the spread of zebra mussels and keep your own equipment from being fouled by completing the following steps:

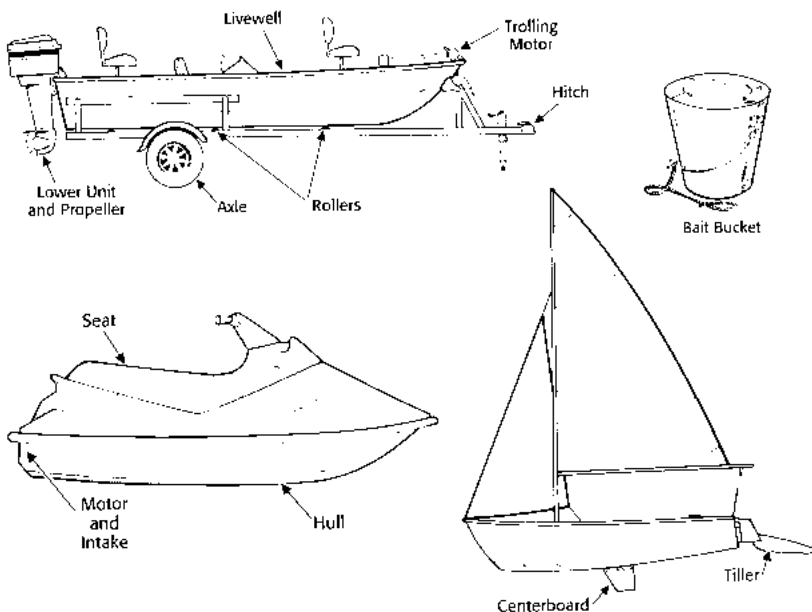
**Clean** — Remove all plants, animals, mud, and thoroughly wash all equipment, especially in crevices and other hidden areas. If your boat or equipment was used in infested waters or if you found any attached adult mussels, use a HOT (140 degree F) water spray.

**Drain**—Eliminate all water before leaving the area, including livewells and transom wells.

**Dry**—Allow sufficient time for your boat to completely dry before launching in other waters.

**Dispose**—Put unused bait in a trash can.

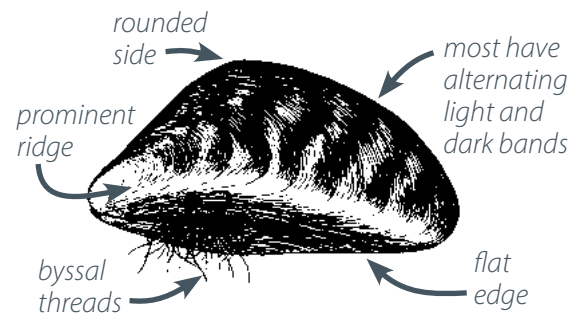
## Where to look for Zebra Mussels



*Zebra mussels hitch rides and clog boat propellers.*

## Identifying Zebra Mussels

Typically these invasive mussels are found attached to objects or structures in the water, other animals like crayfish or native mussels, or each other.



*Adult life size: less than 2 inches*

## For Additional Information

[short.mdc.mo.gov/Zcz](http://short.mdc.mo.gov/Zcz)

[mdc.mo.gov](http://mdc.mo.gov)

For more information or to report a zebra mussel sighting, contact your local Missouri Department of Conservation office, or write:

**Zebra Mussels**  
**Missouri Department of Conservation**  
**Statewide Resource Management**  
**PO Box 180**  
**Jefferson City, MO 65102-0180**

